



UNITED STATES DEPARTMENT OF COMMERCE
Bureau of the Census
Washington, DC 20233-0001

MASTER FILE

May 3, 1999

DSSD CENSUS 2000 PROCEDURES AND OPERATIONS MEMORANDUM SERIES #R-6

MEMORANDUM FOR Magdalena Ramos

Accuracy and Coverage Evaluation Implementation Team Leader
Decennial Statistical Studies Division

From: Deborah Fenstermaker *DF*
Sample Design Team Leader
Decennial Statistical Studies Division

Prepared by: James Farber *jf*
Sample Design Team
Decennial Statistical Studies Division

Subject: Sample Design Information for the Office of Management and Budget

The attachment contains information we provided for the April, 1999 Office of Management and Budget package. We completed Sections B.1 and B.2 of the Collection of Information Employing Statistical Methods part of the package, and sent these sections electronically to Joy Aso of your staff. If you have any questions or comments, please contact Deborah Fenstermaker at (301-457-4195) or James Farber at (301-457-4282).

Attachment

cc: DSSD Census 2000 Procedures and Operations Memorandum Series Distribution List
Joy Aso (DSSD)
Sample Design Team



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B. Collection of Information Employing Statistical Methods

1. Sample Design

The Accuracy and Coverage Evaluation (ACE) Survey is designed to assess the size and characteristics of the population missed or double-counted in Census 2000, similar to the originally planned Integrated Coverage Measurement (ICM) Survey. Although the final ACE sample size will be less than half that of the 750,000 housing unit ICM, the ACE listing phase is identical to that of ICM. By the time of the January, 1999 Supreme Court ruling against the use of sampling for apportionment, earlier commitments had become operationalized based on the ICM sample size and could not be changed. The final ACE sample size of approximately 300,000 interviewed housing units will be attained at a later date by a reduction in the sample selected for listing.

The universe for the listing phase of the ACE Survey is housing units in the United States, including the 50 states, the District of Columbia, and Puerto Rico but excluding areas of remote Alaska. The approximate size of this universe from the 1990 census is given in Table 1.

Table 1. ACE Survey Universe Size

| Area | 1990 Housing Units |
|---------------|--------------------|
| United States | 102,264,000 |
| Puerto Rico | 1,189,000 |

The number of housing units expected to be listed for each area is given in Table 2.

Table 2. Housing Unit Sample Size for ACE Listing

| Area | 1990 Housing Units |
|---------------|--------------------|
| United States | 1,988,000 |
| Puerto Rico | 47,000 |

2. Data Collection

To facilitate housing unit listing, the housing units in the listing universe are first collapsed into block clusters, groups of geographically contiguous census blocks. Block clusters are formed with the dual goals of increasing listing efficiency and reducing the chance of listing error. The first goal is met by collapsing census blocks together to produce block clusters that are geographically compact and that average about 30 housing units, which is a manageable cluster size for listing. The second goal is met by creating block clusters that are well defined to minimize the chance that field staff will list the incorrect block cluster. For example, census blocks that are separated by an invisible boundary, such as city limits, are clustered together. Small census blocks, those with fewer than three housing units, are eligible to be clustered with neighboring census blocks so that the total number of small block clusters will be reduced in comparison to previous census clustering operations. Large census blocks, which have 80 or more housing units, generally are not clustered with other census blocks to avoid creating overly large block clusters.

The block cluster is the primary sampling unit. Prior to sampling, block clusters are stratified based on the expected number of housing units and the American Indian reservation (AIR) status of the block cluster. The four sampling strata and their definitions are presented in Table 3.

Table 3. Sampling Strata and Definitions

| Block Cluster Sampling Stratum | Sampling Stratum Definition |
|--------------------------------|-----------------------------|
| Small | 0-2 Housing Units |
| Medium | 3-79 Housing Units |
| Large | 80 or More Housing Units |
| AIR | Block Cluster on AIR |

Within each sampling stratum, block clusters are further divided into 12 demographic/tenure groups based on the characteristics of the 1990 census population in each block cluster. The 12 groups are created by crossing two tenure groups, Owner and Non-Owner, with six demographic groups: Pacific Islander, American Indian, Asian, Hispanic, Black, and Other. Block clusters are assigned to a demographic/tenure using a hierarchical algorithm that attempts to assign block clusters to the smallest groups nationally to ensure adequate representation of each of the 12 groups in the listing sample. The same algorithm and all 12 groups are used in each state and the District of Columbia. Puerto Rico is divided only into the two tenure groups.

As a final step before sample selection, block clusters are sorted by the 12 demographic/tenure groups within each of the four sampling strata. A systematic sample of block clusters is then selected independently in each state using a variable sampling rate for each sampling stratum. The listing sample size within each state was determined using proportional allocation based on total population. A national total of approximately 5,000 small blocks will be sampled for listing, but these initially selected small blocks will be subsampled after ACE listing to reduce interviewing inefficiencies. Large block clusters will be sampled at a higher rate than medium block clusters for listing, but will later be subsampled for interviewing. The total number of block clusters expected to be in the ACE listing sample is given in Table 4.

Table 4. Block Cluster Sample Size for ACE Listing

| Area | Expected Block Clusters for Listing |
|---------------|-------------------------------------|
| United States | 30,000 |
| Puerto Rico | 575 |